Atlantic States Marine Fisheries Commission

PUBLIC INFORMATION DOCUMENT FOR AMENDMENT 1 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR TAUTOG

ASMFC Vision:
Sustainably Managing Atlantic Coastal Fisheries

August 2015

The Atlantic States Marine Fisheries Commission
Seeks Your Input on Tautog Management

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until 5:00 PM (EST) on October 23, 2015. Regardless of when they were sent, comments received after that time will not be included in the official record. The Tautog Management Board will consider public comment on this document when developing Draft Amendment 1 to the Interstate Fishery Management Plan for Tautog.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction.
2. Refer comments to your state's members on the Tautog Management Board or Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Ashton Harp
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201
Fax: (703) 842-0741
aharp@asmfc.org (subject line: Tautog PID)

If you have any questions please call Ashton Harp at (703) 842-0740.

Commission's Process and Timeline

	February 2015	Board Initiates Plan Amendment and Tasks PDT to Develop Public Information Document (PID)
	August 2015	Board Reviews Draft PID and Considers Approval for Public Comment
Current Step →	**September – October 2015**	**Board Solicits Public Comment on the PID and States Conduct Public Hearings**
	November 2015	Board Reviews Submitted Public Comment and Advisory Panel Input and Provides Guidance to PDT on Development of Draft Amendment 1
	February 2016	Management Board Reviews Draft Amendment 1 and Considers Approval for Public Comment
	March – April 2016	Board Solicits Public Comment on Draft Amendment 1 and States Conduct Public Hearings
	May 2016	Board Reviews Submitted Public Comment and Input from its Advisory Panel and the Law Enforcement Committee Full Commission Considers Final Approval of Amendment 1

Atlantic States Marine Fisheries Commission

Public Information Document for Amendment 1 to the Interstate Fishery Management Plan for Tautog

Introduction

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the Interstate Fishery Management Plan for Tautog (FMP). The Commission is responsible for managing tautog through the coastal states of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, and Virginia.

This is your opportunity to inform the Commission about changes observed in the fisheries; actions you feel should or should not be taken in terms of management, regulation, enforcement, and research; and any other concerns you have about the resource or the fisheries, as well as the reasons for your concerns.

Management Issues

The Tautog FMP was approved in March 1996. Since the FMP was implemented, the resource has experienced changes in stock status, as well as management measures that are used to control harvest. Based on the 2015 Benchmark Stock Assessment and Peer Review Report, tautog is overfished and overfishing is occurring on a coastwide scale.

The 2015 Benchmark Stock Assessment and Peer Review Report suggested the delineation of separate, regional stock units as management areas. The Tautog Management Board accepted the 2015 assessment for management use, but expressed concern with the proposed stock delineations that would split Long Island Sound into two assessment and management areas, which could present management challenges given the high degree that Connecticut and New York fishermen target the same tautog habitat across state lines in the Sound. In the absence of conclusive biological evidence to delineate the regional boundaries along the Atlantic coast, the Board decided to initiate a plan amendment to consider the management implications of regionalization and delineate regions for future management.

Purpose of the Public Information Document (PID)

The purpose of this document is to inform the public of the Commission's intent to gather information concerning the tautog fishery and to provide an opportunity for the public to identify major issues and alternatives relative to the management of this species. In addition, the document seeks specific input from the public on the selection of regional stock areas for management use. Input received at the start of the amendment development process can have a major influence on the final outcome of the amendment. The PID is intended to draw out observations and suggestions from fishermen, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, the PID provides a broad overview of the issues already identified for consideration in the amendment; background information on the tautog population, fisheries, and management; and a series of questions for the public to consider about the future management of the species. In general, the primary question on which the Commission is seeking public comment is: **"How would you like the tautog fishery to look in the future? And, more specifically, what do you think is the best regional breakdown for tautog management moving forward?"**

Background on Tautog Management

The FMP for Tautog *(Tautoga onitis)* was approved in 1996 (ASMFC, 1996), with the goals of conserving the resource along the Atlantic coast and maximizing long-term ecological benefits, while maintaining the social and economic benefits of recreational and commercial utilization.

The FMP required a minimum size limit to increase the spawning stock biomass and yield to the fishery. It also included fishing mortality targets intended to prevent overfishing. The FMP established a 14" minimum size limit and a target fishing mortality (F) of F = 0.15. The target F was a significant decrease from the 1995 estimate of F = 0.70, so a phased in approach to implementing these regulations was established. Northern states (Massachusetts through New Jersey) were to implement the minimum size and achieve an interim target of F = 0.24 by 1997, while southern states (Delaware through North Carolina) had until 1998 to do the same. All states were then required to achieve the target F = 0.15 by 1999.

Several changes were made to the management program under the FMP's adaptive management provisions in response to changes in the fishery and the latest stock assessment information, as described below.

Addendum I (1997) delayed implementation of the interim $F_{TARGET} = 0.24$ until 1998, at which time the states would be required to reduce to $F_{TARGET} = 0.15$ by 2000. It also established *de minimis* specifications.

Addendum II (1999) further extended the deadline to achieve the $F_{TARGET} = 0.15$ until 2002. In the interim, data were collected to conduct a stock assessment to determine the extent of reductions needed by each state to meet the F_{TARGET}.

Addendum III (2002) modified the F_{TARGET} to $F_{40\%SSB} = 0.29$ and mandated each state collect a minimum of 200 age samples per year to improve future stock assessments.

Addendum IV (2007) modified the $F_{TARGET} = 0.20$, and established biomass reference points for the first time as SSB_{TARGET} = 59,083,886 lbs. and 75% of this value as $SSB_{THRESHOLD}$ = 44,312,915 lbs.

Addendum V (2007) allowed states flexibility in achieving the F_{TARGET} through reductions in commercial harvest, recreational harvest, or some combination of both. A Massachusetts-Rhode Island model indicated regional F was lower than the coastwide target, therefore these two states were not required to implement management measures to reduce F.

Addendum VI (2011) established a new F_{TARGET} = 0.15. All states adopted higher minimum size limits exceeding the FMP's minimum requirement of 14" in addition to other measures, such as possession limits, seasonal closures, and gear restrictions (See Table 3A-B). Massachusetts and Rhode Island, again, demonstrated a lower regional F and these states were not required to implement changes to their regulations. States were required to implement regulation requirements on January 1, 2012.

Summary of Stock Status

The 2015 benchmark stock assessment, which considered data through 2012, determined that tautog is overfished and overfishing is occurring on a coastwide basis (Massachusetts – North Carolina). The estimated three-year (2011-2013) fishing mortality is F = 0.30, well-above the F_{TARGET} = 0.10, see Table 2 on page 9.

Stock Definition

Unlike previous assessments, which assessed the stock on a coastwide basis, the 2015 benchmark stock assessment evaluated stock status regionally to reflect differences in life history characteristics and harvest patterns. The management board is considering three regional alternatives to assess and manage tautog.

Table 1. Alternative stock definitions

Option 1 (Current Stock Definition)	Option 2 (3 stocks)	Option 3 (3 stocks)	Option 4 (4 stocks)
Single Stock: Massachusetts – North Carolina	1) Massachusetts–Connecticut	1) Massachusetts–Rhode Island	1) Massachusetts–Rhode Island
	2) New York–New Jersey	2) Connecticut–New Jersey	2) Long Island Sound (Connecticut–New York)
	3) Delaware–North Carolina	3) Delaware–North Carolina	3) New York–New Jersey (excluding LIS)
			4) Delaware–North Carolina

The Peer Review Panel and the Technical Committee support the use of a regional approach since it is most likely to reduce the risk of overfishing and account for tautog's very limited coastwide movement. Specifically, the Peer Review Panel and Technical Committee endorsed the three-region approach (i.e., Options 2 and 3).

Option 4 was not part of the stock delineations in the 2015 benchmark stock assessment because of challenges associated with splitting harvest in Long Island Sound (LIS) between Connecticut and New York. However, the Board decided to include an option with LIS as its own stock unit because of tautog's limited north-south migration and the likelihood that recruitment has

minimal overlap with the surrounding area (e.g., Rhode Island and New Jersey). Currently, researchers at the University of Connecticut are working on an appropriate split of the harvest data to complete a stock assessment of the LIS stock. Additionally, the states are exploring options to conduct an assessment of the New York-New Jersey region (excluding LIS). Results of both assessments are expected to be available in the first half of 2016, but until then there are no biological reference points for the LIS and the New York-New Jersey (excluding LIS) stock units of Option 4. More information, and stock status by region can be found in Table 2 on page 9.

Life History and Biological Overview

Age and growth studies indicate tautog are slow-growing, long-lived species that aggregate around structured habitats with a preferred home site. This unique life history makes it vulnerable to overfishing and slow to rebuild.

Tagging data suggest strong site fidelity across years with limited north-south movement, and some seasonal inshore-offshore migrations. In the northern part of their range, adult tautog move from offshore wintering grounds in the spring, to nearshore spawning and feeding areas, where they remain until late fall when the reverse migration occurs as water temperatures drop. Populations in the southern region may undergo shorter distance seasonal migrations, and in the southern-most part of the range may not undergo seasonal migrations at all (Hostetter and Munroe, 1993; Arendt et al., 2001). For example, observations suggest that some localized populations, such as those in the lower Chesapeake Bay, eastern LIS, and Delaware Bay, remain inshore during the winter (Olla and Samet, 1977; Ecklund and Targett, 1990; Hostetter and Munroe, 1993; White, 1996; Arendt et al., 2001).

Fish as old as 30 years have been caught in Rhode Island, Connecticut, and Virginia, but most of the fish caught are four to eight years old. The species exhibits late age at maturity, it is believed to reach sexual maturity between the ages of three and four (Chenoweth, 1963; White, 1996).

Fecundity, which is the number of eggs produced by a female per spawning event, is strongly related to female size, with larger females producing significantly more eggs than smaller females. A 22-year LIS trawl survey demonstrated a decrease in abundance and a shift in the size structure of the population to smaller fish (LaPlante and Schultz, 2007).

Management Unit

Under the FMP, the management unit is defined as all US territorial waters of the northwest Atlantic Ocean (0 – 3 miles from shore) and from US/Canadian border to the southern end of the species range. Currently, all states from Massachusetts through Virginia have a declared interest in the species. While the stock ranges from Massachusetts through North Carolina, North Carolina has such minimal landin gs it did not declare interest in being part of the management unit. Additionally, Delaware was approved for *de minimus* status in 2015 and therefore is exempt from certain regulatory and monitoring requirements.

Description of the Fishery

Tautog are targeted by both commercial and recreational fisheries, but approximately 90% of the total harvest comes from the recreational fishery (Figure 1). Current management measures for the recreational fishery are presented in Table 3A; regulations for the commercial fishery are in Table 3B.

Recreational Fishery

Recreational harvest estimates are available for 1981-2014 (Table 4A). Recreational catch estimates for tautog are more uncertain than other commonly targeted species along the coast because tautog anglers are not frequently intercepted by the Marine Recreational Information Program (MRIP). Historically, recreational harvest is mostly attributed to New Jersey, New York and Massachusetts which combined account for 60% of total harvest from 1981-2011 (Figure 3). In 1986, anglers harvested a historical high of 16.9 million pounds (lbs.). However, 1986 was a unique year in which recreational harvest in Massachusetts was unusually high. Since then harvest has generally declined. Both 1998 and 2011 had the lowest harvest, at 1.5 million lbs.

Between 2000 and 2014 the recreational harvest averaged 3.3 million lbs. (Figure 2) and on average 90% was harvested within state waters. In 2014, recreational fishermen harvested approximately 970,000 fish weighing a total of 4.2 million lbs., an increase from the 2011-2013 average recreational harvest of approximately 500,000 fish per year across a three year landing average of 1.96 million lbs. (Tables 4A-B). This increase occurred after Addendum VI measures, which were intended to decrease fishing mortality, went into effect on January 1, 2012. Since 2012, the majority of recreational landings are attributed to Connecticut (33%), New York (21%), Rhode Island (16%), and New Jersey (13%) (Figure 4); additionally 94% of the overall harvest came from state waters.

In 2014, Connecticut anglers harvested the most tautog, bringing in 289,829 tautog weighing a total of 1,470,133 lbs. New York harvested the second largest amount with 263,962 fish weighing a total of 1,211,285 lbs. Maryland anglers landed the fewest tautog, with 494 fish (Table 4B).

Commercial Fishery

Commercial landings exist for 1950 to present (Table 5). In 1987, commercial landings peaked at nearly 1.16 million lbs. and steadily declined to a low of 208,000 lbs. in 1999. Since 2000, commercial landings have varied without trend, ranging from approximately 241,000 to 351,000 lbs. Rod and reel are the predominant commercial gear; in addition to bottom otter trawls, and fish pots and traps—collectively they represent the top three commercial gear types for the past two decades. The ex-vessel value for tautog has increased since the historic low of $0.03/lbs. in 1962, along with the increasing landings trend. In 2012, value surpassed $3/lbs.

Monthly landings back to 1990 indicate approximately 30% of the annual commercial harvest occurs during May-June, and again during October-November. More recently, since 2010, the fall harvest has extended to September-November. Harvest is lowest during January-March,

when less than 5% of the annual commercial catch occurs. The commercial harvest is roughly evenly split among the remaining months.

Since 1982, commercial landings have been dominated by Massachusetts, Rhode Island, and New York, each averaging more than 20% of coastwide harvest. New Jersey and Connecticut account for the majority of the remaining harvest, averaging 15% and 8%, respectively.

Issues for Public Comment

Public comment is sought on five issues that are being considered in Draft Amendment 1. The issues listed below are intended to focus the public comment and provide the Board input necessary to develop Draft Amendment 1. The public is encouraged to submit comments on the issues listed below as well as other issues that may need to be addressed in Draft Amendment 1.

ISSUE 1: STOCK MANAGEMENT AREAS

Statement of the Problem

Currently, tautog are managed on a coastwide basis, with the management unit consisting of all states from Massachusetts through Virginia (excluding Pennsylvania). Tagging data suggest strong site fidelity (e.g., tautog tend to stay near and return to their "home" reefs) across years with limited north-south movement, although some populations may undergo seasonal inshore-offshore migrations. Further, the 2015 benchmark stock assessment and peer review supported the use of a regional approach since it is most likely to reduce the risk of overfishing and account for tautog's very limited coastwide movement. This would also allow the inclusion of biological and harvest data at a finer regional scale. Managers are seeking input on how the stock management areas should be defined in the new amendment. Meaning, what should the boundaries be for each regional area?

Management Options

In order to streamline the amendment process, managers are seeking public comment on a stock delineation approach through the PID, with the intention of using these comments to choose one of the below options for the development of draft Amendment. Comments are encouraged on the following stock management area options (Table 2).

Table 2. Stock status for the proposed stock management area options.

Stock Region	Stock Status	SSB Target (lbs.)	SSB Threshold (lbs.)	SSB** 2013 (lbs.)	F Target	F Threshold	F** 2011-13 Average
OPTION 1 (STATUS QUO)							
Coastwide (Massachusetts to Virginia)	Overfished Experiencing Overfishing	45,441,681	34,081,261	**10,762,968**	0.10	0.13	**0.30**
OPTION 2							
Massachusetts, Rhode Island, Connecticut	Overfished Experiencing Overfishing	8,560,550	6,419,861	**3,999,185**	0.15	0.20	**0.48**
New York, New Jersey	Overfished Not Experiencing Overfishing	7,870,503	5,820,204	**4,854,579**	0.17	0.26	**0.24**
Delaware, Maryland, Virginia*	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	**3,377,482**	0.16	0.24	**0.16**
OPTION 3							
Massachusetts, Rhode Island	Overfished Experiencing Overfishing	5,804,771	4,354,130	**3,553,852**	0.16	0.19	**0.38**
Connecticut, New York, New Jersey	Overfished Experiencing Overfishing	11,375,853	8,642,121	**5,200,705**	0.17	0.24	**0.34**
Delaware, Maryland, Virginia*	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	**3,377,482**	0.16	0.24	**0.16**
OPTION 4							
Massachusetts, Rhode Island	Overfished Experiencing Overfishing	5,804,771	4,354,130	**3,553,852**	0.16	0.19	**0.38**
Long Island Sound (CT, NY)^	Status Unknown		Unknown			Unknown	
New York, New Jersey (excluding LIS)^	Status Unknown		Unknown			Unknown	
Delaware, Maryland, Virginia	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	**3,377,482**	0.16	0.24	**0.16**

* North Carolina is also considered part of the Delaware, Maryland and Virginia stock unit, but it has not declared interest in the management of tautog.

** Red numbers indicate the stock is overfished or overfishing is occurring; yellow is cautionary; green is within management limits.

^Stock status information for these areas are not available at this time. Assessments should be completed by the first half of 2016, and subsequently followed by a peer review.

ISSUE 1: STOCK MANAGEMENT AREAS (Cont.)

There is no clear biological evidence to determine where stock boundaries should be drawn. As discussed previously, LIS presents a unique challenge to regional management for this species. The difference between Option 2 and Option 3 is the placement of Connecticut landings and the information on stock condition provided by the LIS Trawl Survey.

Option 2 places Connecticut with Massachusetts and Rhode Island because growth information suggested tautog landed in Connecticut were more similar to Massachusetts and Rhode Island fish than to New Jersey fish, and the Technical Committee felt there was little biological connectivity between Connecticut and New Jersey. However, by grouping Connecticut landings with the Southern New England states under Option 2, tautog found in LIS are divided into two separate stock units. Subsequently, the LIS Trawl Survey which collects data in Connecticut and New York waters will be used to inform the Massachusetts, Rhode Island and Connecticut assessment area, but not the New York-New Jersey assessment area because the survey data cannot be used in more than one region.

Option 3 recognizes the LIS as a shared resource for Connecticut and New York, and groups Connecticut with New York and New Jersey. New York and New Jersey fish on a shared stock in the ocean south of Long Island, and New York and Connecticut fish on a shared stock in LIS. This meta-complex of stocks provides improvement in assessment and management over the status quo coastwide scale. However, this regional breakdown groups Connecticut and New Jersey, which do not fish on the same tautog stocks.

Option 4 was developed to create separate LIS and New York-New Jersey (excluding LIS) management areas. It was not part of the 2015 peer-reviewed assessment and will need additional analysis, review, and discussion. It takes into account the overlap in fishing areas between New York and Connecticut and the likelihood that tautog found in LIS represent a population for assessment and management purposes with minimal overlap in fisheries or tautog movements between adjacent jurisdictions (e.g., RI, NJ). In recent years, harvest from LIS has accounted for 29% of coastwide landings. For these reasons, the Technical Committee acknowledges managing LIS as a discrete area may be appropriate. However, reference points do not

currently exist for the LIS or the New York-New Jersey (excluding LIS) stocks. As a result, management under Option 4 would have to use an ad hoc approach for the LIS and New York-New Jersey (excluding LIS) regions in any management action taking place for 2016. This may include a percent reduction from recent catch within the LIS or New York-New Jersey (excluding LIS) regions, or estimating the reduction needed to achieve F_{TARGET} in Option 3 (Connecticut/New York/New Jersey region) and splitting that reduction in some way between LIS and New York-New Jersey (excluding LIS). It is expected that peer reviewed stock assessment advice for both LIS and the NY-NJ (excluding LIS) assessment areas will be available to support management decisions affecting 2017 and later.

Management Question

- Which management area approach do you support: Option 1 (status quo), Option 2, Option 3 or Option 4?

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES

Statement of the Problem

The goals and objectives for this management program are being reviewed to ensure they are consistent with the needs of the tautog fishery and resource. Should the goals and objectives of the FMP be revised?

The current goals and objectives as outlined in the FMP:

GOALS

A. To perpetuate and enhance stocks of tautog through interstate fishery management so as to allow a recreational and commercial harvest consistent with the long-term maintenance of self-sustaining spawning stocks
B. To maintain recent (i.e. 1982-1991) utilization patterns and proportions of catch taken by commercial and recreational harvesters
C. To provide for the conservation, restoration, and enhancement of tautog critical habitat for all life history stages
D. To maintain a healthy age structure
E. To conserve the tautog resource along the Atlantic coast to preserve ecological benefits such as biodiversity and reef

community stability, while maintaining the social and economic benefits of commercial and recreational utilization

OBJECTIVES

A. To establish criteria, standards, and procedures for plan implementation as well as determination of state compliance with FMP provisions
B. To allow harvest that maintains spawning stock biomass (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintain young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan
C. To achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit
D. To enact management recommendations which apply to fish landed in each state, so that regulations apply to fish caught both inside and outside of state waters
E. To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement
F. To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program. Effective stock assessment and population dynamics modeling require more information on the status of the resource and the biology/community/ecology of tautog than is currently available, in particular to facilitate calculation of F and stock trends
G. To identify critical habitats and environmental factors that support or limit long-term maintenance and productivity of sustainable tautog populations
H. To adopt and promote standards of environmental quality necessary to the long-term maintenance and productivity of tautog throughout their range
I. To develop strategies that reduce fishing mortality, restore stock size composition and the historical recreational/commercial split, consider ecological and socio-economic impacts and identify problems associated with the

offshore fishery. Compatible regulations between the states and the EEZ are essential

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES (Cont.)

Management Questions

- Are these goals and objectives still appropriate for the tautog fishery and resource?
- What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource?
- Which five objectives do you feel are the most important?

ISSUE 3: MANAGEMENT MEASURES

Background

Current management measures for the recreational fishery are presented in Table 3A; regulations for the commercial fishery are in Table 3B. The recreational fishery is managed with minimum size limits (15-16" depending on the state), possession limits (3-6 fish/person/day depending on the state and season), and seasonal closures. The commercial fishery is managed with quotas, gear restrictions, minimum size limits, possession limits and seasonal closures.

Management Questions

- Do you support the use of regional management measures?
- What are the most effective management measures in place?
- Are there management measures that can be improved upon to better achieve management goals and objectives?
- Are there additional state management efforts that should be included in the FMP?

ISSUE 4: REFERENCE POINTS AND REBUILDING TIMEFRAMES

Statement of the Problem

Based on the 2015 stock assessment, tautog is overfished and overfishing is occurring on a coastwide basis. To increase spawning stock biomass and yield to the fishery, the Draft Amendment will consider new reference points and stock rebuilding timeframes to guide management within regional stock management areas (outlined previously in issue 1).

Management Questions

- Do you support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?
- Do you support the use of regional reference points?
- Do you support stock rebuilding timeframes that correspond to the needs of each regional management area (i.e. timeframes that are based upon respective stock condition relative to their regional reference points)?

ISSUE 5: OTHER ISSUES

As stated earlier in this document, the intent of the PID is to solicit comments on a broad range of issues for consideration in Draft Amendment 1. The public comment should generally focus on **"How would you like the tautog fishery and resource to look in the future?"** The Board is interested in hearing from the public on all issues associated with the fishery and resource. Comments should not be limited to issues included in this document.

Issues that have been discussed by stakeholders, scientists, and managers regarding the future of the fishery, include:

A. *Adaptive management to achieve the goals and objectives*
    a. Adaptive management provides the Board with the ability to make timely changes to the management program based on changes to the fishery or resource. These changes could be addressed through the addendum process, which typically takes 3-6 months to finalize versus the amendment process, which typically takes 12-16 months to finalize. Examples of issues addressed under adaptive management are: size limits, possession limits, seasonal closures, area closures, and creation of special management zones (to name a few).

B. *Landings and biological monitoring requirements*
    a. The 2015 benchmark stock assessment made a number of monitoring recommendations to improve understanding of tautog life history and stock dynamics, as well as aid in development of future stock

assessments. High priority needs include improved biological sampling of the commercial and recreational catch, better sampling of the smallest and largest fish, improved characterization of the lengths of discarded or released fish, and development of a comprehensive fishery-independent survey that is more appropriate for a reef-oriented species, such as a pot or trap survey.

C. Illegal fishing of undersized tautog

a. Commercial demand
    i. There is demand for undersized live tautog in seafood restaurant businesses, primarily Asian markets in large cities, with a premium price for those who can manage to catch and transport these fish to a retailer alive. The preferred fish size is 12", well below the minimum legal size for most states (i.e., 15-16" depending on the state).
b. Recreational demand
    i. Law enforcement has noted a significant number of hook and line fisherman using tautog (almost always undersize) as live bait for species such as striped bass.

ISSUE 5: OTHER ISSUES (Cont.)

Management Questions

- Do you support the use of adaptive management to meet the goals and objectives of the fishery?
- Do you support increased monitoring to improve our understanding of tautog life history and stock dynamics as well as aid in development of future stock assessments?
- Are undersized tautog harvested for recreational bait or the live fish market in your state? If so, is this a concern to you?
- Should there be an ASMFC mandated commercial fish tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin. Should the point of tagging be the point of harvest and/or the point of sale?

- As a structure-oriented species, do you have regional habitat recommendations, recognizing that the Commission and the state marine fishery agencies have limited regulatory authority for habitat?
- What other changes should be made to the tautog fishery that are not covered by the topics included in this document?

References

Atlantic States Marine Fisheries Commission. 1996. Fisheries Management Plan for Tautog. ASMFC, Washington, DC.

Atlantic States Marine Fisheries Commission. 2015. Tautog benchmark stock assessment report for peer review. Arlington, VA.

Arendt, M., J. Lucy, and T. Munroe. 2001. Seasonal occurrence and site-utilization patterns of adult tautog, *Tautoga onitis* (Labridae), at manmade and natural structures in Chesapeake Bay. *Fisheries Bulletin*. 99:519-527.

Chenoweth, S. 1963. Spawning and fecundity of the tautog, *Tautoga onitis*. M.S. thesis. University of Rhode Island. North Kingston, RI, 60 p.

Ecklund, A.M. and T.E. Targett. 1990. Reproductive seasonality of fishes inhabiting hard bottom areas in the Middle Atlantic Bight. *Copeia* 1990:1180-1184.

Hostetter, E.B. and T.A. Munroe 1993. Age, growth, and reproduction of tautog Tautoga onitis (Labridae: Perciformes) from coastal waters of Virginia. *Fishery Bulletin* 91:45-64.

LaPlante, L.H. and Eric Schultz. 2007. Annual Fecundity of Tautog in Long Island Sound: Size Effects and Long-Term Changes in a Harvested Population. *American Fisheries Society* 136: 1520-1533.

Olla, B.L. and C. Samet. 1977. Courtship and spawning behavior of the tautog, *Tautoga onitis* (Pisces: Labridae), under laboratory conditions. *Fishery Bulletin* 75:585-599.

White, G.G. 1996. Reproductive Biology of Tautog, *Tautoga onitis*, in the Lower Chesapeake Bay and Coastal Waters of Virginia. M.S. Thesis. The College of William and Mary.

Table 3A. Recreational regulations for tautog by state

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
Massachusetts	16”	3	Jan 1 – Dec 31
Rhode Island	16”	3 3 6 (up to 10 per vessel)	Apr 15 – May 31 Aug 1 – Oct 15 Oct 16- Dec 15 (private)
Connecticut	16”	2 2 ~~4~~	Apr 1-Apr 30 July 1 – Aug 31 Oct 10 – Dec 6
New York	16”	~~4~~	Oct 5 – Dec 14
New Jersey	15”	~~4~~ ~~4~~ 1 6	Jan 1 – Feb 28 Apr 1 – Apr 30 Jul 17 – Nov 15 Nov 16 – Dec 31
Delaware	15”	5 3 5 5	Jan 1 – Mar 31 Apr 1 – May 11 July 17 – Aug 31 Sept 29 – Dec 31
Maryland	16”	~~4~~ 2 ~~4~~	Jan 1- May 15 May 16 – Oct 3 Nov 1 – 26
Virginia	16"	3	Jan 1 – April 30 Sept 20 – Dec 31
North Carolina	-	-	-

Table 3B. Commercial regulations for tautog by state

STATE	SIZE LIMIT	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2015 QUOTA (lbs.)	GEAR RESTRICTIONS*
Massachusetts	16”	40	Apr 16 - May 23 Sept 1 - Oct 31	54,984	Yes
Rhode Island	16”	10	Apr 15 - May 31 Aug 1 - Sept 15 Oct 15 - Dec 31	17,116 13,390 17,116	Yes
Connecticut	16”	10	Apr 1- Apr 30 Jul 1 - Aug 31 Oct 8 - Dec 24	-	Yes
New York	15”	25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession)	Jan 1 – Feb 28 Apr 8 – Dec 31	-	Yes**
New Jersey	15”	> 100 lbs requires directed fishery permit	Jan 1 - 15 June 11 - 30 Nov 9 - Dec 31	103,000	Yes
Delaware	15”	5 3 5 5	Jan 1 - Mar 31 Apr 1 - May 11 July 17 - Aug 31 Sept 29 - Dec 31	-	Yes
Maryland	16”	4 2 4	Jan 1- May 15 May 16 - Oct 31 Nov 1 - 26	-	Yes
Virginia	15”	-	Jan 1 – Jan 21 Mar 1 – Apr 30 Nov 1 – Dec 31	-	Yes
North Carolina	-	-	-	-	Yes

* FMP regulations: A pot and trap used to catch tautog shall have hinges or fasteners on one panel or door made of one of the following degradable materials: 1) Untreated hemp or jute string of 3/16 inch in diameter or smaller; 2) Magnesium alloy fasteners; or 3) Ungalvanized or uncoated iron wire of 0.094-inch diameter or smaller.

****** New York: In addition to other fish pot or trap requirements, it is unlawful to take or possess tautog using fish pots or traps, unless there is one circular vent measuring in 3 1/8 inch opening diameter.

Table 4A. Recreational harvest in tautog in pounds, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	790,610	664,568	242,337	1,496,039	161,423	6,584	10,296	742,653	536	4,115,046
1982	3,226,868	777,930	610,608	1,674,949	1,241,155	428,036	90,645	271,919	15,849	8,337,959
1983	1,837,262	615,595	458,582	1,124,844	414,957	4,437	6,551	1,267,165	20,144	5,749,537
1984	733,876	1,809,822	733,710	541,805	717,261	95,740	79,110	669,869	NA	5,381,193
1985	328,041	277,384	471,185	2,034,903	741,656	144,859	1,107	298,797	7,154	4,305,086
1986	7,862,584	2,042,584	838,346	2,833,208	2,132,571	264,744	10,049	918,138	4,173	16,906,397
1987	1,751,372	507,424	1,106,606	2,288,076	2,130,955	387,075	266,094	442,751	8,430	8,888,783
1988	2,255,930	612,123	610,171	2,380,285	1,331,833	249,803	446,947	1,410,003	4,605	9,301,700
1989	1,076,366	296,889	1,038,217	1,018,015	1,289,185	743,339	78,391	806,336	31,012	6,377,750
1990	895,327	389,579	200,000	1,980,289	1,256,488	142,627	59,720	229,442	2,703	5,156,175
1991	798,889	1,007,549	648,634	2,352,646	2,189,144	354,498	106,223	619,214	24,645	8,101,422
1992	1,668,485	656,712	1,048,639	1,199,558	2,485,693	183,854	159,730	255,995	12,559	7,671,225
1993	752,598	389,733	531,023	1,800,794	1,361,612	217,881	105,231	758,410	9,738	5,927,020
1994	373,189	328,668	417,438	585,037	330,551	152,033	177,358	1,101,130	2,708	3,468,112
1995	309,224	237,093	402,616	369,643	1,722,713	793,339	115,993	613,348	3,405	4,567,374
1996	397,284	248,840	245,816	193,045	1,123,174	158,751	26,483	778,315	13,191	3,184,899
1997	166,042	301,109	84,297	331,529	483,639	204,419	182,995	391,258	58,751	2,204,039
1998	96,695	316,339	231,622	208,743	41,431	257,348	27,648	273,515	26,420	1,479,761
1999	363,471	223,763	61,142	761,446	511,673	358,328	37,677	203,249	11,940	2,532,689
2000	442,816	203,602	58,475	258,100	1,812,960	373,581	56,126	188,187	4,502	3,398,349
2001	502,247	165,380	63,157	171,927	1,482,613	159,961	72,357	127,555	4,503	2,749,700
2002	521,611	265,116	447,140	2,135,221	1,184,560	652,007	104,246	116,797	4,448	5,431,146
2003	221,843	479,345	603,861	315,384	164,327	200,618	43,212	308,838	20,512	2,357,940
2004	107,905	698,737	77,219	966,022	283,109	240,288	21,633	524,251	31,226	2,950,390
2005	382,866	807,715	145,342	314,691	144,423	220,642	84,538	242,650	30,277	2,373,144
2006	294,785	380,009	842,213	793,999	726,554	406,499	47,484	468,246	3,204	3,962,993
2007	333,668	621,747	1,384,528	823,257	1,064,250	298,500	137,026	246,802	58,480	4,968,258
2008	109,932	491,953	720,575	1,081,693	520,100	380,729	69,331	222,485	1,535	3,598,333
2009	85,414	323,717	303,047	1,431,273	408,567	387,643	108,297	268,102	18,006	3,334,066
2010	162,488	923,690	412,775	502,526	1,067,379	146,044	201,753	479,462	9,389	3,905,506
2011	129,669	80,300	88,728	450,171	381,449	152,895	33,859	173,871	1,555	1,492,497
2012	94,699	534,716	982,891	252,745	133,048	171,329	17,670	49,988	11,687	2,248,773
2013	197,775	593,304	392,146	355,232	395,539	138,051	18,681	23,836	9,636	2,124,200
2014	399,812	297,955	1,470,133	1,211,285	579,934	187,915	3,004	121,352	9,472	4,280,862

Table 4B. Recreational harvest in tautog in number of fish, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	228,736	233,508	100,308	721,062	132,271	3,457	4,670	236,768	3,072	1,663,852
1982	1,051,022	214,938	231,187	646,693	583,550	137,328	35,105	71,599	15,062	2,986,484
1983	670,508	245,796	200,676	612,163	344,580	4,350	2,126	579,795	36,549	2,696,543
1984	258,256	490,128	287,470	286,077	516,086	28,388	42,835	207,192	NA	2,116,432
1985	100,941	115,404	182,318	1,105,234	840,627	62,001	486	91,957	8,252	2,507,220
1986	1,980,719	671,592	333,396	1,183,114	2,369,852	141,290	5,476	322,905	12,660	7,021,004
1987	617,068	130,729	312,430	929,887	1,015,123	99,706	90,523	126,783	3,698	3,325,947
1988	621,679	207,799	234,198	828,183	564,286	94,491	107,570	368,320	4,462	3,030,988
1989	250,077	116,506	303,782	562,549	710,958	249,928	34,709	284,477	11,354	2,524,340
1990	233,444	153,433	75,871	953,622	841,770	61,526	45,467	111,998	3,428	2,480,559
1991	176,905	291,946	191,137	871,221	1,067,283	128,985	26,770	168,068	6,804	2,929,119
1992	357,949	193,786	319,221	413,236	1,018,205	68,769	106,255	100,952	5,249	2,583,622
1993	216,553	118,775	180,055	505,632	773,213	82,475	60,231	300,484	4,785	2,242,203
1994	78,483	82,304	150,109	196,937	208,003	65,837	157,260	231,740	2,271	1,172,944
1995	72,461	54,570	120,259	118,006	707,963	300,303	43,542	222,186	3,178	1,642,468
1996	79,798	55,528	72,558	82,826	470,431	57,751	9,695	224,447	6,605	1,059,639
1997	39,075	70,628	32,200	92,907	196,724	65,133	85,682	106,678	11,432	700,459
1998	25,034	56,084	66,797	68,887	11,667	62,584	6,512	50,923	9,487	357,975
1999	91,476	52,136	15,701	196,564	165,505	95,309	20,180	42,880	8,437	688,188
2000	87,552	38,687	10,648	79,245	462,371	113,686	20,129	34,725	5,555	852,598
2001	115,658	39,993	16,579	45,913	467,728	50,541	23,715	28,985	2,418	791,530
2002	102,662	62,423	100,240	629,772	347,831	185,684	42,038	25,987	4,514	1,501,151
2003	46,808	120,061	167,875	128,729	102,593	63,181	13,555	76,236	12,185	731,223
2004	21,816	124,419	16,464	278,749	90,214	70,608	8,690	150,703	9,137	770,800
2005	72,038	160,524	35,699	84,280	43,055	60,831	28,129	60,484	13,707	558,747
2006	79,639	81,611	200,708	246,882	200,725	111,028	14,894	105,137	1,234	1,041,858
2007	91,304	125,233	352,819	223,798	300,179	99,605	43,308	60,992	15,250	1,312,488
2008	34,237	103,760	167,179	318,899	172,518	101,735	19,128	56,384	734	974,574
2009	24,879	85,416	85,915	346,276	127,403	119,941	37,963	60,470	2,895	891,158
2010	45,743	197,062	116,058	145,663	374,599	56,505	57,338	127,221	3,720	1,123,909
2011	32,828	19,304	25,823	111,406	136,674	45,483	11,853	46,441	981	430,793
2012	24,796	104,425	194,101	58,127	30,705	44,807	5,216	13,918	9,936	486,031
2013	57,736	126,897	104,982	76,797	111,377	38,368	3,851	5,976	5,963	531,947
2014	100,297	68,768	289,829	263,962	169,879	50,467	494	25,917	3,997	973,610

Table 4C. Recreational directed trips that targeted or harvested tautog, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	TOTAL
1981	133,401	113,268	100,158	305,359	75,729	3,458	4,247	98,806	834,426
1982	338,751	129,894	99,704	257,979	222,095	31,316	56,032	75,156	1,210,927
1983	292,435	137,334	98,572	277,585	119,430	5,952	2,002	92,059	1,025,369
1984	139,603	284,909	222,862	327,674	210,892	18,655	22,313	122,676	1,349,584
1985	79,242	137,830	241,500	479,055	134,101	12,759	1,698	75,046	1,161,231
1986	500,757	183,928	209,639	527,990	647,480	83,942	12,561	88,408	2,254,705
1987	128,967	83,415	153,383	483,605	321,539	27,979	15,454	51,524	1,265,866
1988	179,568	129,705	238,297	429,959	256,390	25,742	53,934	175,868	1,489,463
1989	109,844	105,036	257,835	334,236	280,680	60,240	32,067	95,024	1,274,962
1990	87,222	205,761	158,510	462,868	409,608	27,480	76,019	53,532	1,481,000
1991	86,113	154,934	205,139	547,079	410,306	43,359	27,220	120,923	1,595,073
1992	78,528	164,841	225,713	365,216	313,109	60,858	35,941	66,909	1,311,115
1993	115,604	172,215	155,736	354,960	312,372	72,008	57,044	113,382	1,353,321
1994	96,991	126,616	118,351	169,566	134,154	63,220	87,748	101,967	898,613
1995	85,063	81,618	121,986	178,920	202,828	110,419	66,906	76,822	924,562
1996	88,602	68,555	82,982	121,014	182,100	45,048	18,313	75,662	682,276
1997	47,660	83,477	52,967	79,916	129,478	55,318	49,478	55,296	553,590
1998	41,741	73,252	73,776	99,419	36,079	46,318	20,757	29,750	421,092
1999	79,840	72,504	29,596	176,028	102,933	43,632	59,779	44,639	608,951
2000	64,447	50,857	15,394	143,471	192,234	66,246	58,863	33,070	624,582
2001	42,012	67,239	39,749	89,702	230,465	73,028	52,744	36,687	631,626
2002	52,716	60,250	101,715	305,883	274,477	82,107	53,730	25,158	956,036
2003	80,506	89,821	130,892	145,223	104,869	65,453	39,789	59,878	716,431
2004	36,969	124,730	112,825	301,279	153,908	106,624	15,408	95,428	947,171
2005	59,652	106,102	70,479	119,876	110,640	65,826	73,241	75,139	680,955
2006	53,194	89,647	122,904	300,377	312,887	90,718	57,236	102,037	1,129,000
2007	63,552	114,747	147,098	202,800	328,041	94,342	130,086	41,044	1,121,710
2008	37,114	149,914	131,014	291,760	254,881	97,416	50,755	34,005	1,046,859
2009	74,253	104,936	36,879	247,184	259,026	53,905	125,790	39,320	941,293
2010	79,224	151,867	112,678	239,711	373,784	65,978	175,025	107,397	1,305,664
2011	108,688	81,796	107,558	253,610	188,938	66,894	73,526	68,635	949,645
2012	31,952	87,289	97,726	101,582	97,260	43,015	58,540	13,616	530,980
2013	69,341	59,910	62,538	122,535	109,137	31,368	33,571	13,004	501,404
2014	81,213	61,531	115,557	265,484	92,399	31,190	6,296	31,877	685,547

Table 5. Commercial landings for tautog in pounds, by region, 1981-2012. Landings have been combined to protect confidentiality at the state level. States were combined based on how landings were reported in the 2015 benchmark stock assessment.
(2015 Benchmark Stock Assessment, NOAA Fisheries and ACCSP Data Warehouse)

Year	MA, RI, CT Combined	NY-NJ Combined	DelMarVa + North Carolina Combined	Total (Coastwide)
1981	193,200	135,800	2,900	331,900
1982	176,800	238,600	4,156	419,556
1983	233,700	189,000	2,819	425,519
1984	435,500	232,200	9,915	677,615
1985	516,600	210,000	7,770	734,370
1986	633,100	302,000	5,706	940,806
1987	829,700	320,400	7,080	1,157,180
1988	718,100	343,000	9,714	1,070,814
1989	666,600	337,300	12,531	1,016,431
1990	582,166	280,655	10,684	873,505
1991	779,943	319,435	10,733	1,110,111
1992	717,758	285,343	9,071	1,012,172
1993	447,993	242,941	7,506	698,440
1994	210,781	234,016	14,693	459,490
1995	150,753	188,849	35,965	375,567
1996	130,723	194,901	31,810	357,434
1997	118,360	127,954	34,598	280,912
1998	118,528	111,318	24,340	254,186
1999	114,670	65,193	28,962	208,825
2000	148,224	79,589	19,636	247,449
2001	162,654	122,947	19,879	305,480
2002	224,861	97,410	29,178	351,449
2003	181,639	139,030	19,832	340,501
2004	150,810	127,663	22,276	300,749
2005	166,235	113,688	12,271	292,194
2006	211,477	123,964	14,424	349,865
2007	189,263	136,777	14,886	340,925
2008	142,054	152,529	16,357	310,940
2009	126,817	101,880	14,947	243,644
2010	136,318	142,366	9,170	287,855
2011	120,000	128,626	17,758	266,384
2012	124,229	97,257	16,581	238,067
2013	129,479	118,512	15,829	263,820
2014	121,740	109,591	9,817	241,148

Figure 1. Total tautog harvest in pounds (1981-2014)

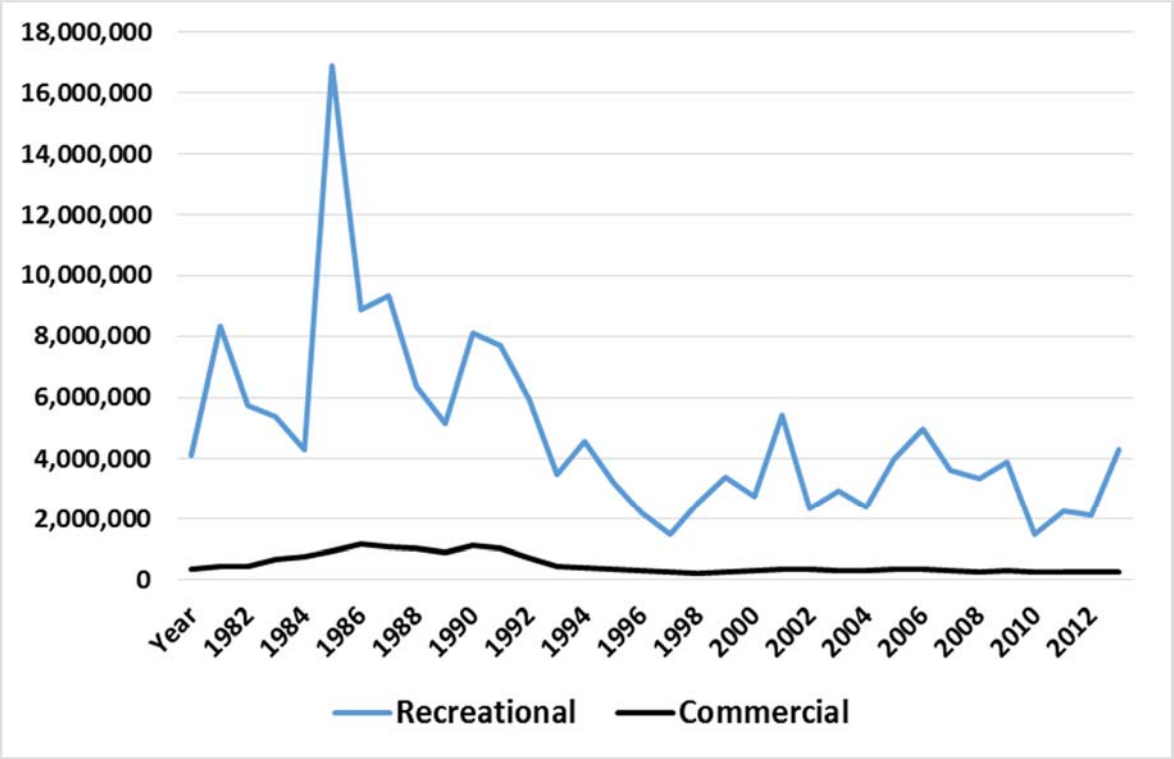

Figure 2. Total tautog harvest in pounds (2000-2014)

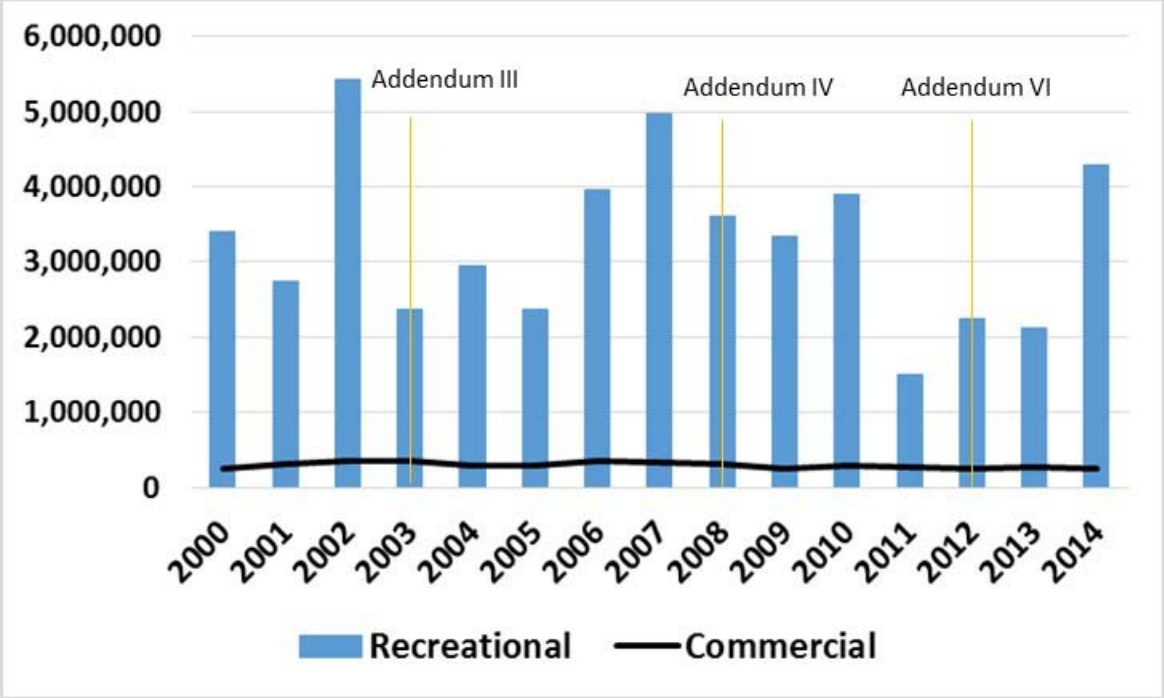

Figure 3. Recreational landings for tautog by state (1981-2014 average landings, MRIP)

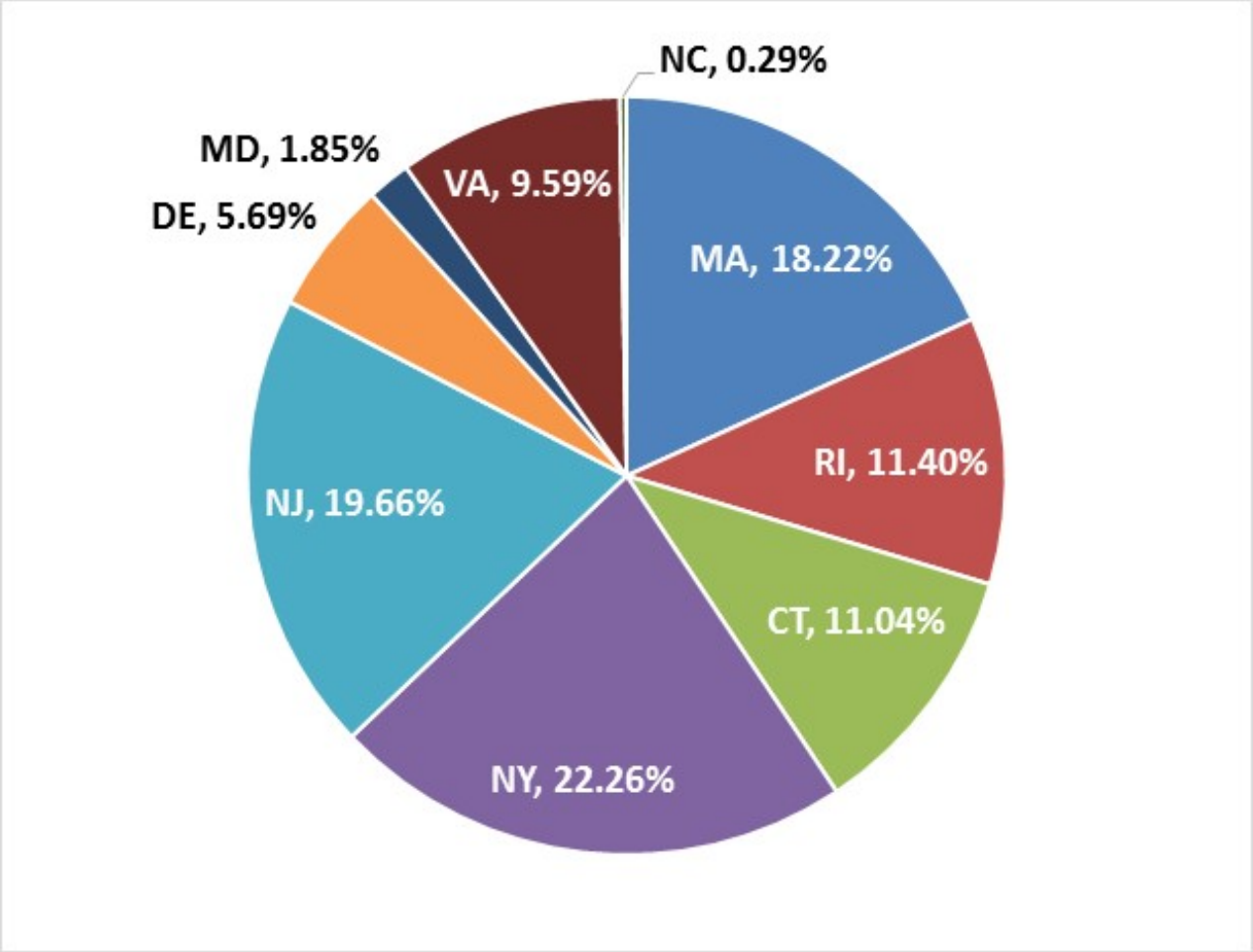

Figure 4. Recreational landings for tautog by state (2012-2014 average landings, represents landings after Addendum VI went into effect, MRIP)